Refining Understanding of Photon-to-Electron Conversion in Locally Positive Electron Cloud Zones - Redefining Excitons and Why They Transform Photons

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Introduction

Current doctrine holds that photons may only be converted into electrons when they pass through so-called excitons or "electron holes," vacancies which form in the former positions of electrons within a material after quantum leaps. Many efforts geared toward creating more efficient photovoltaics have revolved around causing electron holes to leap about more frequently, but these efforts ignore the quantum-mechanical underpinnings of natural photosynthesis and why this is such an efficient mechanism.

As mentioned in the publication of 13 April 2023, photons may be converted efficiently into electrons as a result of the tendency of electrons within electron clouds to entirely avoid zones constituting perhaps 15% of the cloud's volume (but perhaps, under extreme conditions, as much as an entire hemisphere,) resulting in the coining of the term hemispheric parting. Hemispheric parting is an unrecognized phenomenon which results from the alignment of electrons in proteins within chloroplasts. Multiple helical proteins create sufficient alignments so as to render select zones of one another's atoms devoid of electrons. What was clear to this author even one year ago was that these zones of positivity were the locus of photon-to-electron conversion in photosynthesis. Also clear was that the slowed velocity of photons whilst traveling through this zone was giving photons the opportunity to absorb mass from the Higgs Field of the nucleus of the atoms, resulting in their conversion into electrons. An electron is simply a heavy photon. A photon is a light electron (pun intended.)

Abstract

While Coulomb Forces from aligned electrons within helical protein structures certainly would account for localized zones of positive charge within affected electron clouds, they do not account properly for the slowed velocity of photons within these zones. Magnetism, however, would account for this.

It stands to reason that if electrons are being repelled by these force lines, that their magnetic ebullience is oriented in the direction of the positively charged zones whilst they skirt the electron exclusion zone. Thus, if the poles of these electrons tend to be oriented toward the positive zone, these electrons would, in the aggregate, act much as an exciton does and would magnetically slow any photons passing nearby. This is the true mechanism through which the photons are slowed sufficiently, at least in the case of photon-to-electron conversion in photosynthesis, to undergo this transformation.

We must also re-evaluate what is transpiring in the case of observed excitons. Current doctrine holds that when a photon passes through an exciton, the positive charge causes the conversion. Of course, this explanation makes little sense as excitions are supposedly neutral in charge. An exciton is merely a magnetic vortex remnant from a quantum leap of an electron.

While quantum leaps of electrons are near-instantaneous, the length of time it takes for an exciton to dissipate is comparatively greater. Quantum magnetism i.e. magnetons naturally follow curved paths, which set them apart from photons, neutrinos and particles with traditional properties of momentum i.e. those particles travel in straight lines. It is because magnetons follow curved paths and naturally find their way back to their starting point that skyrmionic effects persist for a time after an electron hole forms.

A photon passing into one of these skyrmions is caught in the magnetic eddy and therefore spends a greater length of time than it otherwise would in the Higgs Field of the nucleus. Because the photon is rotating around this eddy more or less in the same direction as the surrounding magnetons, the magnetons, which would ordinarily have a mass-negating effect, do not have this effect and the photon is permitted to accumulate mass efficiently. By the time the eddy has dissipated, the photon has become a full-fledged electron in its own right. With or without the presence of some magnetism from a residual eddy or from other electrons, the Higgs Field is sufficient to prompt these conversion events given enough time. Thus, anything which slows the photon sufficiently will enable conversion. We know that the photons caught in the eddy are moving at the same velocity as the magnetons of the eddy and thus travel neck-and-neck with the magnetons. Any velocitudinal deviance between the two would actually result in the photon negating the eddy and would result in the photon being ejected from the electron cloud without conversion. Remarkably, this would seem to suggest that even magnetons, the most granular quanta of magnetism yet theorized, may in and of themselves project their own force which exists at an even lower phylum of size which we could not hope to detect using present methods if we've had this level of difficulty in detecting magnetons, which still await official discovery. The discovery of increasingly granular force carriers would not be without precedent.

Conclusion

This provides a more complete theoretical understanding of photon-to-electron conversion in the context of both excitons; the current primary focus of photovoltaic research; and in Coulomb-Based Electron Exclusion Zones (CBEEZ;) a promising candidate for future photovoltaic research.